Hominid Cultural Evolution as Seen from the Archaeological Evidence in Southeast Asia

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This paper deals with hominid cultural evolution in Southeast Asia from the beginning to the end of the Pleistocene.

In 1948, Movius characterized the Far East (of which Southeast Asia is a part) as an area of cultural "backwardness" and "unstandardized tools" [Movius 1948:411]. This cultural categorization of the Far East stems from the fact that from the beginning of Paleolithic studies in the Far East (mostly by Europeans), Paleolithic cultural interpretations were patterned after the Africa-European models where there were distinct developmental lithic tool sequences throughout the Pleistocene. Some researchers, myself included, believe that there is sufficient evidence to clearly demonstrate that the Pleistocene hominid cultural development in Southeast Asia (and mainland Asia) was markedly different but not inferior, to that of Africa and Europe [Pope 1994:532]. Movius' model is a reflection of European bias.

My objective in this paper is to review the present Southeast Asian Pleistocene cultural and hominid physical evidence, then to present a model which I think demonstrates that Southeast Asia is not an area of cultural "backwardness", and to explain why the presence of mainly "unstandardized" tools in the Southeast Asian Pleistocene does not necessarily support Movius' model. Movius did make a major, lasting contribution in his identification of what is known as the "Movius line", names for Movius by Carleton Coon. The Movius line, is a geographical boundary, extending through northern India, that separates the Western Acheulean hand-axe tradition from the chopper-chopping tools of East Asia. Acheulean tools are considered to be more advanced than the more crudely made, less standardized tools of the Far East [Pope 1978:51].

Pleistocene hominid specimens are rare in both mainland and Island Southeast Asia. They are found only in Vietnam and Burma in Mainland Southeast Asia, and in Island Southeast Asia, only in Java, Philippines and Sarawak. Only Java has a series of fossil hominid specimens in the lower and middle Pleistocene. This lack of widespread finds of Pleistocene hominid and tool sequences in Southeast Asia makes it difficult to form a clear picture of Pleistocene hominid cultural evolution in this region.

Now I'll briefly review what evidence there is for Pleistocene hominid physical and lithic tool assemblages in Southeast Asia.

Myanmar (Burma)

In April 1981, a fragment of the right maxillary bone containing the first molar and the intact second premolar in the

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maxilla was found near Nwe Gwe Village, in the Chindwin Basin of Central Myanmar (Fig.1). Identification of this fragment as *Homo erectus* is based on the dental anatomy of the teeth. The fossils are ascribed to the late Pleistocene, with a suggested date of 500,000 yrs. BP [Maw 1993:72].

Thailand

Radiometric samples from Ban Mae Tha and Ban don Mun (Fig.1) dated by paleomagnetism, indicate that hominids were present in Thailand's Lampang province before 730,000. Artefacts from these sites conform to a consistent morphological patterning that differs from previously recovered Thai assemblages which do not exhibit relatively standardized artefact forms [Pope, Nakabanlang and Pitragool 1987:749]. These sites produced a number of cobble tools made on quartz and basalt. Based on the dated basalt above the cobble tools, the Lampang artefacts are the oldest known in Southeast Asia, and provide a minimum age for hominids in mainland Southeast Asia. I have been to these sites and I have examined the tools. The evidence seems compelling.

Lang Rongrien Rockshelter, Krabi province, southern Thailand (Fig. 1), is a stratified site. The lowermost occupation levels have been radiocarbon dated between 38,110 and 28,171 BP. Occupation continued until the Mid-Holocene. Anderson sees the cultural deposits at Lang Rongrien as representing the first appearance of *Homo sapiens* in Southeast Asia, the first plant domestication in the area, and the beginning of sedentary life on the Malay Peninsula, as interpreted from a core, utilized flakes, and possible bone and antler tools in the lower levels [Anderson 1990:54].

Vietnam

In 1987 isolated teeth and partial jaws of *Home erectus*, along with all the components of the Stegodon-Ailuropoda fauna, some *Gigantopithecus* teeth and a complete *Hylobates* (gibbon) skull, were found at the Tham Khuyen site in Lang Son province (Fig. 1) [Ciochon and Olsen 1987: 16-17]. "Vietnamese scientists regard the fauna from Tham Khuyen as Middle Pleistocene, with an age of approximately 250,000 BP" [Ibid.:17]. Middle Pleistocene bifaces were collected at the site of Nui Do [Ibid.:15, see photo].

Malay Peninsula

The locality of Kota Tampan, Malaysia, on the West bank of the Perak River near Lenggong (Fig.1), was first excavated in 1938 by Collings, and again in 1954 by Sieveking. I assign the 1938 Collings and the 1954 Sieveking excavated lithic specimens to what I call a "Problematic Site" category. A Problematic site is a locality that has produced lithics that may not be man-made artefacts [Shutler 1988: 661]. In 1987 Zuriana Majid excavated 127 lithic specimens from what she calls a workshop, near the 1938-1954 Collings and Sieveking locations, on the shore of a late Pleistocene lake. Dates on volcanic ash in which the lithic specimens were found, indicate an age slightly younger than 35,000 BP [Majid 1988:128], for a late-upper Pleistocene occupation.

Island Southeast Asia

How did Pleistocene hominids get to Java? In 1988, Shutler and Braches proposed a two-pronged model for the migration of hominids and megafauna to Java from the Asian mainland [Shutler and Braches 1988:1086]. We suggested that the Arakan Yoma area of Burma was the region first reached by *Homo erectus* in Asia. Then

we proposed that there was a bifurcation, with some *Homo erectus* moving on into southern China and mainland Southeast Asia through the Sino-Burman ranges, and up the coastal platform of mainland Southeast Asia and China. Other groups of *Homo erectus* moved toward what we now know as Java, following two possible routes. One route was via the Andaman and Nicobar Islands, through the Mentawi Islands off the southwest coast of Sumatra, and on into Java. The other route was the traditional one down the Malay Peninsula and across the Sunda Shelf including what are now islands off the east coastof Sumatra.

Java

In 1971, Jacob and Curtis announced a potassium-argon date of 1.9 + 0.4 my for the Modjokerto skull found at Perning, central Java (Fig.1). However, this date has not been widely accepted because of provenience problems [Jacob and Curtis 1971: 50]. In February of 1994 a new dating of the Modjokerto skull was announced at 1.81 + 0.04 my. Again there was a lot of controversy. This controversy revolves around the fact that if one or both of these dates were correct, current thinking on the major models of the appearance of *Homo erectus* in Africa, and their movement to Asia would have to be revised. For example, 1.6 my is the oldest date I know of for *Homo erectus* in Africa. If one or both of these two early Java dates were correct, then *Homo erectus* in Java is older than *Homo erectus* is Africa.

Until 1992, no artefacts had been shown to be indisputably associated with *Homo erectus* in Java. In 1992, large flakes and bolas were reported to have been found at the Ngebung locality in the northern part of the Sangiran dome[Semah, *et al* 1992: 439](Fig.1). These researchers claim the geological position of these tools is the middle Pleistocene Kabuh, but they admit they have no precise radiometric dates to confirm this [Ibid.: 444]. Their claim, if true, is of tremendous importance in interpreting hominid cultural evolution in Southeast Asia. It would show that there is "no fundamental cultural difference between the Southeast Asian hominids and *Homo erectus* elsewhere in the Old World" [Ibid.: 445]. In my view, the only reason that there are no undoubted associations of tools and *Homo erectus* in Java is because the fossil hominid sites are all secondary deposits. Future work at Ngebung may clarify this situation. Others such as Hutterer [1977: 41], suggest that *Homo erectus* may not have produced any technology. I find it inconceivable that somewhere between Africa and Java, *Homo erectus* forgot how to make tools, especially since we know that they made tools in China.

At Sambungmachan Java, claims have also been made for Mid-Pleistocene lithics. Findings there include a chopper and a retouched flake, with a skull [Jacob, *et al* 1975:885] (Fig.1). After examining them, I have no problem with the lithics being tools, but there is wide disagreement as to just which level the tools and skull come from.

Wadjak, Indonesia

The Wadjak site is located on the Gunrung Lawa Mountain, near the town of Wadjak (Fig.1) The Wadjak I skull was discovered in 1888 by Van Rietschoten, and the Wadjak II skull in 1890 by Dubois. For the past 100 years almost everyone writing on hominid evolution pertaining to Asia, Southeast Asia and Australia, has attempted without any idea of the age of the Wadjak skulls, on the basis of morphology alone, to relate them to Europe, to the earliest *Homo sapiens* in Southeast Asia and the first

Australians. I recently obtained a radiocarbon date for Wadjak of 6560 + 140 BP. If this date is correct, then the Wadjak skulls have no bearing on early hominid evolution in Southeast Asia.

Sulawesi, Indonesia

The earliest radiometrically dated occupation site in Sulawesi is Leang Burung 2, a cave located in the Maros region in the southwest peninsula (Fig.1). The Pleistocene levels date between 31,000 and 19,000 BP. [Glover 1981:15]. Levallois points, and scrapers, along with a few retouched tools and flakes were found here in the late Pleistocene layers. From 19,000-4,000 BP, there gradually evolved a change of tool types, e.g., a small flake industry with denticulates and Maros points appeared. Glover [1981:36-37] sees this Southwest area of Sulawesi being well populated, with people living in the same cave and other nearby sites and exploiting the same range of foods until the mid-Recent period. Relatively advanced stone working techniques were practised in the Late Pleistocene of Sulawesi; a reduction in flake size, and incorporation of new tool types, demonstrate a continuity in the use of materials, flake and tool production methods and many tool forms from 30,000-4,000 BP. Evidence from a number of sites in this region, with a long occupation sequence show a continuity of cultural conditions indicated by the use of shellfish and vertebrate fauna assemblages at Leang Burung 2 and nearby sites. This combined evidence suggests a long period of environmental stability in this area. This site appears to be the best understood cultural sequence in the late Pleistocene of Southeast Asia.

Niah Cave, Sarawak

The stratified Niah Cave sequence contains evidence of the longest known *Homo sapiens* habitation in Southeast Asia (Fig.1). The sequence may span the period from 40,000-2,000 BP. Harrisson conducted excavations at the West mouth of Niah Cave from 1954 to1967. Although he published a general cultural sequence for Niah, he was unable to complete a final report because of his untimely death in Thailand in 1976. Because of the importance of Niah in Southeast Asia prehistory, the fact that Harrisson never published the basic stratigraphical associations of his excavated material, left a lot of questions unanswered. In 1977 in an effort to clear up these problems, Zuriana Majid conducted limited excavations at the West mouth of Niah Cave and restudied all of the previously excavated materials. Majid developed a five Phase sequence different from that of Harrisson's Niah sequence. The following sequence was developed by Majid. Niah I, Unit I (below 84"), Indistinguishable flake artefacts; Niah II Unit 2 (72-84"), Pebble tools and indistinguishable flake artefacts; Niah III, Unit 3 (48-72"), Pebble implements and distinct flake types, pointed flake and semi-lunar flake; Niah IV, Unit 4 (24-48"), increase in numbers of all artefacts and the ending of the two earliest flake types.; Niah V. Unit 5 (0-24"), introduction of ceramics and a decreasing use of pebble and flake artefacts. Significant increase of charred bone and ironstone [Majid 1982:129]. Throughout Niah's entire occupation, the lowland forest, riverine, estuarine and marine areas were utilized as a subsistence base. In 1958 Harrisson found a human skull close to 40,000 year old charcoal. No mandibular fragments were found. Brothwell [1969:339], who studied the skull, based on his comparative studies, sees the Niah skull as closest to the Tasmanian and Australian groups, followed by the

Javanese and Borneo groups studies. It is undoubtedly modern *Homo sapiens*. The basic problem is that there is no direct radiometric date on the skull, and there is some doubt whether or not it is associated with the 40,000 year old radiocarbon date.

Tabon Cave, Philippines

Fox excavated five stratified, non-descript, flakes assemblages, dating possibly to 30,500 plus year, and two human mandibles dating to between 22-24,000 [Fox 1970:41](Fig.1). Tabon Cave was probably occupied for as long as Niah Cave, but the people living there did not develop as varied a cultural sequence as found at Niah Cave.

Summary

The Southeast Asian lower and middle - Pleistocene sites such as Lampang in Thailand and Tham Khuyen in Vietnam do not have lithic assemblages that show much technological change over time. For the late Upper Pleistocene, only Lang Rongrien in Thailand, Niah Cave in Sarawak, Tabon in the Philippines, and Leang Burung 2 in Sulawesi have any semblance of a technological sequence. By far the most informative site is Leang Burung 2 as far as interpreting cultural evolution is concerned. The present archaeological evidence from Southeast Asia does not show much technological change throughout the Pleistocene.

Chopper-chopping tools appear to have been present in mainland Southeast Asia between 700,000-800,000 BP, at two localities, Ban Mae Tha and Ban Don Mun, Lampang province, northern Thailand. The dating of these chopper-chopping tools is based on paleomagnetic stratigraphy and Potassium-argon dates.

The question of when chopper-chopping tools got to Island Southeast Asia is open. In my view, the chopper-chopping tool complex possibly came to Island Southeast Asia with *Homo sapiens* about 70,000 years ago. If so, it could be one explanation as to why no chopper-chopping tools have been found at *Homo erectus* sites in Java. The well known Pacitan chopper-chopping tool assemblage found in south central Java (Fig.1), has no reliable dating. These lithic tools, as noted above, very likely arrived with the first *Homo sapiens* from mainland Asia.

In my view, the review just presented indicated that there were few assemblages of "standardized tools" present in Pleistocene Southeast Asia. In spite of this, I do not see Pleistocene Southeast Asia as having been an area of "cultural backwardness" and further, there was no need for complex "standardized tools." Both of these factors can be explained within an environmental context.

Pope [1989:53] notes the "forested zone (that covered most of Asia and Southeast Asia in the Pleistocene) that lacked open-dwelling mammals, coincided generally with the distribution of the Chopper-Chopping tool complex, which appears to be the product of forest adaptation, and which de-emphasised the utilization of standardized stone tools." Pope goes on to suggest the" answer to the lack of standardized stone tools in the Far East, and the apparent cultural retardation is that bamboo was used extensively for tools in the Pleistocene" [Pope 1989:53]. Again, Pope [Ibid.:53] notes that the distribution of naturally occurring bamboo in the Pleistocene coincided almost perfectly with the distribution of chopper-chopping tools. [Ibid.:53].

The paleoenvironment of East Asia during the Pleistocene was stable, the dominant eco-type was forest and not savannah. Arriving from his African savannah homeland *Homo erectus* had to readapt to the tropical Asian Forest. This they did very successfully.

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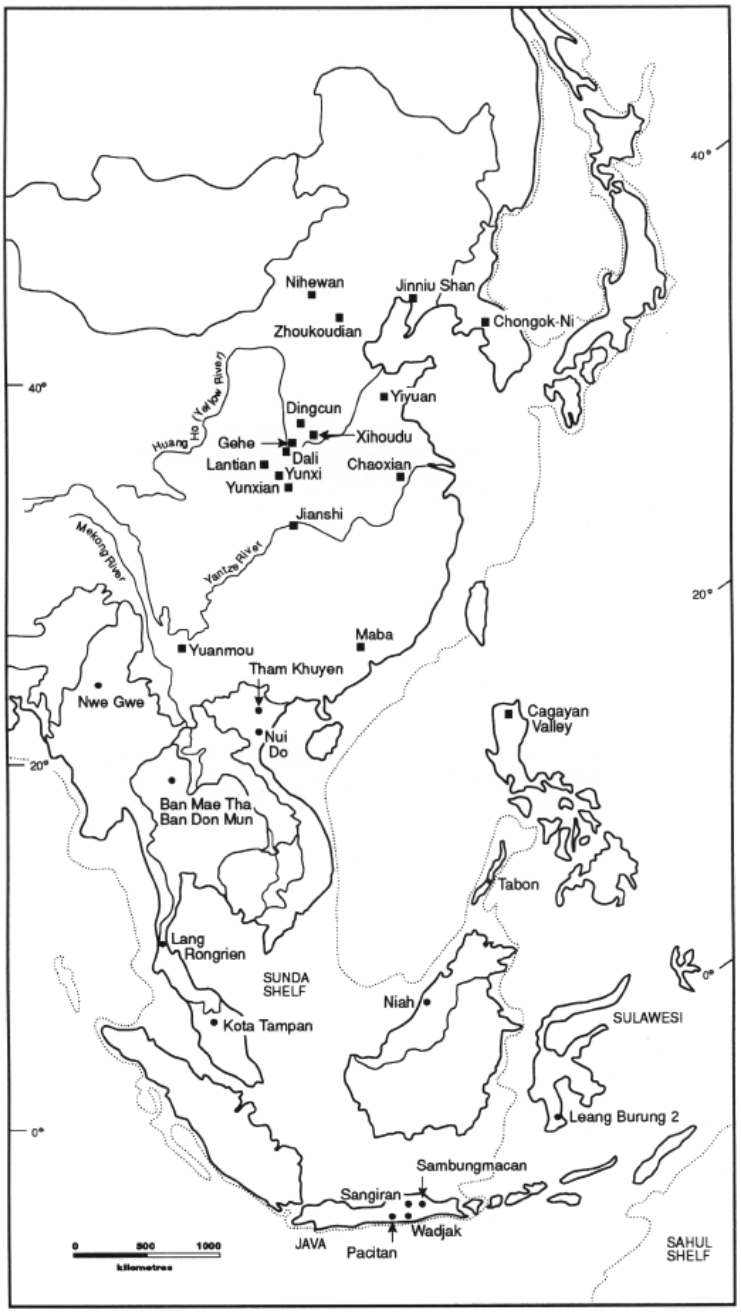

Fig.1 東亞和東南亞的更新世遺址

● Archaeological sites mentioned in the text

■ Important Pleistocene archaeological sites in East and Southeast Asia

..... Indicates extent of shore lines at lowest sea level in the Pleistocene

從東南亞考古證據看古人類文化的發展

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【摘要】

一直以來，歐洲學者對遠東地區(包括東南亞)的舊石器文化普遍存有偏見，總以歐洲及非洲更新世的石器發展爲準則，認爲同期的遠東在文化方面發展較遜。其中Movius於1948年曾以「落後」和「器具製作缺乏標準」來形容此時期的遠東文化。然而，包括本文作者在內的部份學者卻相信東南亞的古人類文化並不比歐非遜色，只是文化面貌迥異而矣。本文正擬從東南亞地區更新世文化遺存及古人類體格特徵入手，令此論點得以確立。根據現有考古資料，有如下發現：

1981年於緬甸出土的頷骨化石，測定爲距今約50萬年前猿人所有。泰國南邦在距今約73萬年前，已有古人類活動，是目前東南亞大陸年代最早的古人類遺存；Lang Rongrien石窟的最底層文化堆積，年代爲2萬至3萬多年前，屬新人類文化。1987年於越南 Tham Khuyen 出土的猿人及動物化石約有25萬年歷史。1987年於馬來半島 Kota Tampan 出土的一批石器約爲3萬多年前製成。1971年於爪哇Perning出土的猿人頭骨化石，有可能比非洲猿人的最早年代160萬年還要早；Ngebung 及 Sambungmachan 發現的石器據推測爲中更新世文物。印尼 Sulawesi 洞穴遺址發現有3萬至4000年前的石器，年代越晚，技術越進步。沙撈越Niah洞穴遺址地層堆積顯示智人類於4萬年前開始在此停居，石器發展層次分明，是東南亞年期最長的智人類停居地。菲律賓Tabon洞穴遺址出土的石器約有3萬年歷史，人類下顎骨則2萬多年。

總體來看，東南亞更新世遺存所見石器，技術未隨時代而見顯著進步。東南亞大陸在70-80萬年前已出現砍砸器，但群島地區要晚至7萬年前才見此型制。器具製作的確缺乏標準，卻並不代表落後，只是無此需要罷了。